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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/451,746 | 11/30/1999 | CARLO VERTEMARA | 99-S-096(167 | 9456 |

30431 7590 03/04/2003

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EXAMINER

HABERMEHL, JAMES LEE

ART UNIT PAPER NUMBER

2651

DATE MAILED: 03/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/451,746

Applicant(s)

VERTEMARA ET AL.

Examiner

James L Habermehl

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 16-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. This Office action is in response to amendment filed 4 December 2002, which papers have been placed of record in the file.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rote et al. Rote et al. Figures 1 and 3-4 and their corresponding description meet all the limitations of the claims, except it does not explicitly show the sensor circuit is operable to be coupled directly across the coil. At least elements 114, 88, 90, and 70 correspond to the claimed drive circuit, elements 77 and 86 correspond to the claimed sensor circuit which senses a BEMF when substantially zero current is flowing through the coil, at least elements 178, 180, 181, 182, and 183 correspond to the claimed speed-sense circuit with resistor 182 connected to the first coil terminal, element 176 corresponds to the claimed switch coupled between the feedback input terminal and the speed sense circuit output terminal, and resistor 181 connected to the second coil terminal corresponds to the

claimed speed-sense circuit second input terminal coupled to the second coil terminal.

Col. 7, lines 2-7 show that while measuring the BEMF there is zero current flow and hence zero voltage drop across the sense resistor 77. This means that electrically the connection across both the coil and sense resistor of Figures 1 and 4 at the time of measuring the BEMF is equivalent to the claimed sensor circuit connected directly across the coil. Lacking any showing of criticality, it would have been obvious at the time the invention was made to use the circuit of Rote et al. as an equivalent circuit for the purpose of measuring the BEMF based on routine engineering design motivations, e.g., cost, reliability, ease of production, etc.

4. Claims 4-7 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rote et al. in view of Cameron. Rote et al. Figures 1 and 3-4 and their corresponding description meet all the limitations of the claims, except it does not show parking or unparking to/from a ramped platform, nor explicitly showing doing so at a speed less than ten inches per second. At least elements 114, 88, 90, and 70 correspond to the claimed drive circuit, elements 77 and 86 correspond to the claimed sensor circuit which senses a BEMF when substantially zero current is flowing through the coil, col. 6, lines 30-44 show the arm is maintained at a predetermined speed for a predetermined time period, the period being the amount of time that switching control circuit 80 can keep switch 124 in engagement with

terminal 122 until power has substantially completely failed, and the drive circuit drives the coil in response to the sum of the control and speed signals at element 88.

Cameron Figures 1-4b and 6-7 and col. 1, lines 49-61 show using a ramped platform for the purpose of avoiding damage to the disk when parking the head. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rote et al. in order to enable use of the teaching of Cameron of using a ramped platform, the motivation being to avoid damage to the disk when parking the head.

The combination as disclosed above discloses the claimed invention except for the further limitation of claim 4 of "at a speed that is less than 10 inches per second." Rote et al. col. 6, lines 19-22 teach a constant rate "substantially less than its highest possible velocity." As the disclosed combination meets all the other limitations of claim 4, it necessarily is able to move the head at the claimed rate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to move the head at a speed that is less than 10 inches per second, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

5. Claims 12-13 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rote et al. in view of Cameron. Rote et al. Figures 1 and 3-4 and

their corresponding description meet all the limitations of the claims where col. 6, lines 30-44 show the arm is maintained at a predetermined speed for a predetermined time period, the period being the amount of time that switching control circuit 80 can keep switch 124 in engagement with terminal 122 until power has substantially completely failed, except Rote et al. does not show that the disk drive parks the head on a ramped platform, nor that the constant speed for parking the head is explicitly five inches per second.

Cameron Figures 1-4b and 6-7 and col. 1, lines 49-61 show using a ramped platform for the purpose of avoiding damage to the disk when parking the head. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rote et al. in order to enable use of the teaching of Cameron of parking the head on a ramped platform, the motivation being to avoid damage to the disk when parking the head.

The combination as disclosed above discloses the claimed invention except for the further limitation of claim 16 of "wherein the constant speed equals five inches per second." Rote et al. col. 6, lines 19-22 teach a constant rate "substantially less than its highest possible velocity." As the disclosed combination meets all the other limitations of the claim, it necessarily is able to move the head at the claimed rate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to move the head at a speed of five inches per second, since it has been held that discovering an optimum value of a result effective variable

involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

6. Claims 19-26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rote et al. in view of Cameron. Rote et al. Figures 1 and 3-4 and their corresponding description meet all the limitations of the claims, where col. 6, lines 30-44 show the arm is maintained at a predetermined speed for a predetermined time period, the period being the amount of time that switching control circuit 80 can keep switch 124 in engagement with terminal 122 until power has substantially completely failed, and the drive circuit drives the coil in response to the sum of the control and speed signals at element 88, except Rote et al. does not show the disk drive of Rote et al. directly monitors coil BEMF, uses a parking platform, or un parks the head at the constant speed.

Rote et al. col. 7, lines 2-7 show that while measuring the BEMF there is zero current flow and hence zero voltage drop across the sense resistor 77. This means that electrically the connection across both the coil and sense resistor of Figures 1 and 4 at the time of measuring the BEMF is equivalent to the claimed sensor circuit connected directly across the coil. Lacking any showing of criticality, it would have been obvious at the time the invention was made to use the circuit of Rote et al. as an equivalent circuit for the purpose of measuring the BEMF based on routine engineering design motivations, e.g., cost, reliability, ease of production, etc.

Regarding the further limitations of claims 20-21 and 24-25 of using a parking platform, Cameron Figures 1-4b and 6-7 and col. 1, lines 49-61 show using a parking platform for the purpose of avoiding damage to the disk when parking the head. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rote et al. in order to enable use of the teaching of Cameron of using a parking platform, the motivation being to avoid damage to the disk when parking the head.

Regarding the further limitations of claim 21 of unparking at a predetermined speed, Cameron col. 1 line 62 through col. 2, line 20 show unparking the head at a predetermined speed for the purpose of avoiding head wobbling and damage to the disk when unparking the head. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rote et al. in order to enable use of the teaching of Cameron of unparking the head at a predetermined speed, the motivation being to avoid damage to the disk when parking the head.

Response to Arguments

7. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Please note that the examiner is relying on Cameron as one of many possible examples of explicitly showing the use of a ramped platform for parking the head,

and for moving the head off the platform at a predetermined constant rate. The teaching of a dithered drive signal in Cameron does not prejudice the use of the teaching of a ramped platform in Cameron in the combinations as disclosed above for the purpose of avoiding damage to the disk, even if Cameron recognizes that such a dithered drive signal may also serve to avoid damage to the disk. Rote et al. col. 1, lines 23-31 teach that the system of Rote et al. is for retracting and parking the head; however one deficiency of Rote et al. is the lack of an explicit showing of a ramped platform. Other art already cited, e.g., Carobolante et al. col. 1, lines 28-53, also teaches parking on a ramped platform in the same head actuator BEMF velocity measurement art, and could alternatively been used in many if not all of the combinations disclosed above. Considering the widespread use of ramped platforms in disk drives for the last 10+ years, one of ordinary skill would certainly consider the use of such a well-known platform with Rote et al.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

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calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James L Habermehl whose telephone number is (703)305-6975. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-9051 for regular communications and (703)746-5883 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-0286.



Habermehl/jlh
February 25, 2003



DAVID HUDSPETH
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